PIKES PEAK RADIO AMATEUR ASSOC

Ø BEAT

COLO. SPRINGS, COLORADO

NOVEMBER 1981

Skip — Or Why Can't He Hear Me?

15/10 METER SKIP SURVIVAL

Do you understand the skip characteristics of 15 and 10 meters and therefore get all the enjoyment you can out of these bands?? I hope this article will help many of the newer amateurs understand what is going on and to be more tolerant of the activities of these bands.

Interference (QRM) from other stations is basically either from propogations changes (reflection and refraction of radio waves) or ignorance of operators (all of us, to some degree). Intentional jamming of a signal by one amateur to another is so rare we can assume it does not happen.

Not quite all your long distance propogation will be due to sun radiation activated ionospheric skip, usually from the E and F layers, or due to "wind" activated ionospheric skip, known as sporadic E (happens in the E layer, written as E_s). Let us review these and see how they affect our operating.

Sun radiation activated ionosphere

The sun radiation activated skip is very regular and although the day-to-day variation may be great, it tries to follow a pattern. In the morning more stations from the East are heard; by evening more stations in the West are heard. Stations to the Southeast or Southwest will be stronger than stations to the Northeast or Northwest if you live in the mid-latitudes of the Northern Hemisphere. That is because there will be more ionization by the sun's radiation toward the Equator than toward the North Pole.

This also means the band will be open longer for Florida stations working Southern California than for Maine stations working Washington state. This is why, in the evening, a United States station will hear Australian stations long after Japanese stations have faded away. It all balances out since the stations in the northern latitudes get more use from the lower frequency bands such as 80 meters.

Now apply what you know. The time is near sunset and one station is to the east and one is to the west; which one will give you a long QSO (contact and conversation)? Usually the western one. Why only usually? Consider the following:

As the sun moves away from your area, the ionosphere gets thinner. Therefore your signal will need to leave your antenna at a more horizontal angle for it to keep skipping. The morevertical part of the signal will begin to penetrate the ionosphere. This horizontal and vertical is not the polarization of your antenna, but how long your signal will travel close to the gound.

Again, apply what you know. The time is again near sunset, one station is west and close, but the other is west and not as close; which one will give you the longer QSO? Usually the station farther away. There is more to this type of ionization, but this is enough to put the point across.

"Wind" activated ionosphere

If you have listened to 15 and 10 meters in the spring and summer, you know that on many evenings stations from the East, from a thousand miles away, come in like they were next door. This is sporadic E, E_s, an ionizatio nof the E layer due to high winds at that level. Do not picture a major wind storm because this area is almost outer space, which is why the ions, these chemically and electrically active things, can exist like this.

(continued on page 5)

P.P.R.A.A. DIRECTORS

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(*Two-year board terms began October 1981)

ZERO BEAT is published monthly in the interest of the members of the Pikes Peak Radio Amateur Association, Inc., Colorado Springs, Colorado. Permission is given to reprint articles or excerpts provided credit is given. Deadline for submission of articles is the 21st of the month. Classifieds accepted anytime.

The Pikes Peak Radio Amateur Association meets on the second Wednesday of every month at the First United Methodist Church, 420 N. Nevada, at 7:30 p.m. All amateurs and interested parties are invited to attend.

Editor: Don Lohse KBØKQ, 1410 E. LaSalle, Colorado Springs, CO 80907 635-7469

OCTOBER MEETING MINUTES

The October meeting of the PPRAA was called to order at 7:34 p.m. on October 14 by President Dave Vierling NØDV. Introductions were followed by approval of the minutes as printed in Zero Beat. The treasurer reported a balance of $1695.59. Don KBØKQ made comments on the state of the novice classes, and about the lack of articles for Zero Beat. Members are encouraged to help keep Zero Beat healthy.

Don WDØBSZ, presented Dave NØDV, with an award from the local chapter of 10-X International to recognize his placing nationally in a contest. Dave then turned around and presented Don with the Hammy award, to thank him for helping us find a good meeting place.

The upcoming Fox Hunt was discussed. Bud KAØLBP, our CCARC delegate, reported that the fall quarter meeting of CCARC will be held at the Sheraton at the south gate of the Academy on October 23. Members are encouraged to attend and get an idea of how CCARC works.

Dave NØDV reported that the CMTRA has made a donation to the club for equipment and asked members to give him ideas that would benefit the club.

Elections for officers and directors were held folloing break. Those elected are: President — Leroy Smith WBØLTV; Vice-President — Al Bailey ADØZ; Secretary — Greg Utterback KAØFOZ; Treasurer — Doug Moloney WBØMHP; Board Members — Les Borst WDØGTA, Bud Libengood NØDEF, Tom Weatherly ADØO, and Karl White K4DQ. Help these people do a good job by giving them your ideas and comments.

The meeting was adjourned at 9:47.

Respectfully Submitted,
Don KBOKQ (for KFOW)

Zero Beat editor without your help.

Typesetting courtesy The Letter Setters

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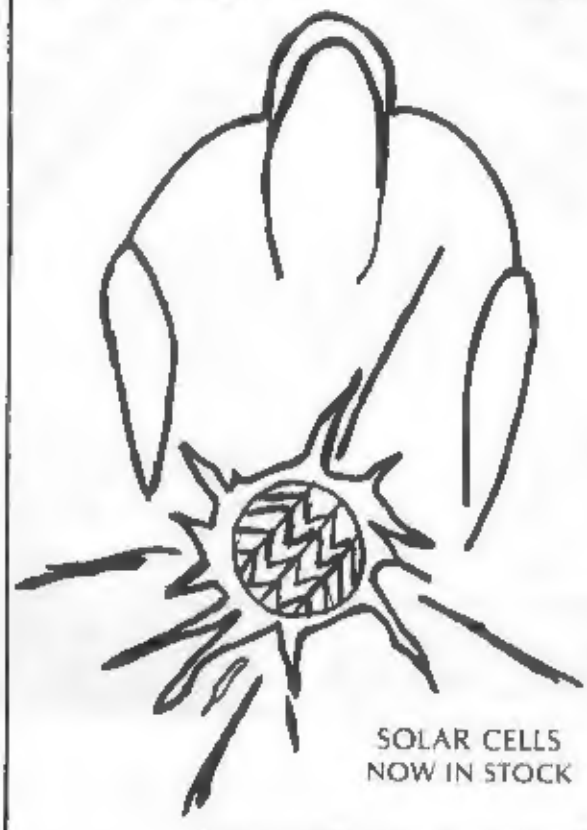

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FROM THE PRESIDENTS' CORNER

Hello out there in Hamdom. Now that the new Club Officers have all been duly installed, I'd like to say Thank You, on behalf of all the Club and Board Officers, for giving us your vote of confidence. I know that I for one, am going to try (and I'm not alone in this) and give you a years worth of service As You Want It. So now is your chance to tell us How You Want It. We are here to serve you! You are Numero Uno!

There are many of us in this Club, that have considerable expertice that is of Great Value to all Hams. Those of us that are or have been professionally involved in electronics throughout our lives, take so many things for granted, because it has been a routine, daily job for us, and we just do it naturally. So, we tend to overlook the simplest things (to us), that may be giving someone else problems. If you have a problem, or a question about something, please ask. I'm sure we can find someone who has the answer or can point you in the right direction. Just remember, we also had those same questions a long time ago, even if we don't care to remember that far back, and best of all, someone helped !

Good DXing;

Smitty, WBØLTV

P.S. The only dumb question is the one that is not asked!

MEETING NOTICE

The November meeting of the Pikes Peak Radio Amateur Association will be held on Wednesday, November 11, at 7:30 p.m. in the basement of the First United Methodist Church located at the corner of Nevada and Boulder Streets. The program will be on Public Service. All members and interested persons are invited to attend. The annual Christmas Party will also be discussed.

CENTENNIAL MOVES!!

Everyone please take note! Centennial Electronics will be moving from their present location of 715 N. Weber to their new location at 2324 E. Bijou. Their phone number will remain the same. Make it a point to drop in and see their new place and support your Zero Beat advertisers!

XMAS PARTY

The annual PPRAA Christmas Party is on for December 5, 1981 at the Iron Springs Chateau in Manitou Springs. This is where we had it last year, and if you talk to anyone who went, we all had a fantastic time. For those who may be unfamiliar with the Iron Springs, it is a melodrama dinner theater that serves a delicious all you can eat buffet, followed by some old time melodrama in the theater (complete with boos and hisses), and then some more music in the lounge after the show. Cost is $13.50 per person and this includes dinner, show, tax, tip, etc. — everything except cocktails if you are so inclined. You should plan to be there no later than about 6:30 p.m. to have time to enjoy your dinner and the company. There will be further information passed out at the meeting. Make your reservations with Doug WBØMHP, or me, KBØKQ. See you there!

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PPRAA BOARD MEETING FOR OCTOBER 1981

Meeting was called to order at 1945 Hours by WBØMHP, Doug. WDØGTA, Les was appointed spokesman, while WBØLTV volunteered to be Secretary. members in attendance were: WBØMHP; WDØGTA; WBØLTV; ADØZ; NØDEF; K4DQ; ADØO; KAØFOZ; no visitors were in attendance.

Discussion proceeded at a lively pace and the following subjects were discussed: CCARC meeting of 24 October, 1981, which is to be held at the Sheraton Motor Inn. This meeting is being hosted by the PPRAA, and our representative, Bud, NØDEF, has things well in hand. The Board agreed to underwrite his expenses, not to exceed $30—35.00. The Board prepared comments to the questionaire circulated by the CCARC, and agreed to the increases in dues, with the provision that value be received. ADØZ and NØDEF will be attending, and all other interested, are encouraged to go.

It was unanimously agreed to continue with the present arrangement for Zero Beat, and to continue the present mailing schedule. Don, KBOKQ was given a round of applause for his work in preparing the club paper.

It was agreed that WDØGTA, NØDV, and KBØKQ make great haste in rewriting of the Club By-Laws, hopefully to be completed by the end of the year, so that work can proceed with Club Incorporation, and the tax exempt status, both of which should receive utmost priority.

WBØMHP proposed, and it was agreed, that the Club's records be audited by the Board of Directors. Any club member interested in taking part in the audit is welcome, and will be placed on the Audit Committee.

WBØMHP also proposed that a questionaire be composed and distributed to the Club members, in an effort to secure some direction, policies, and activities of interest to the membership. This was approved by the Board, and all Club members are encouraged to submit their input to the Board of YOUR Club. KAØFOZ suggested, and the Board agrees to expand the TVI committee to include Radio Frequency Interference. KØDJ was appointed to co-chair this committee. Duties are to investigate various forms of intereference, deliberate, etc.

WBØLTV suggested that the Club have two meetings per month, during the summer months, with the second meeting a Friday picnic, to encourage more family participation. This was temporarily shelved, due to our summertime involvement with public service activities. (Any additional input?). Smitty also proposed that the structure for awarding of Home Brew Nite prizes be reexamined in order to encourage more participation by the average ham, who doesn't have access to all the fancy tools that some have. With regards to the 12 volt generator Smitty offered to build for the Club, contingent upon the rebuilding of the gas engine has has, the board recommended that the cost of rebuilding the engine be determined prior to giving its approval.

Program for the November meeting is to be by the Public Service Committee, on the HOWS, WHYS and WHEREFORS that they go through whenever the club is contacted to supply communications. The December meeting is Home Brew Night. Oh, and don't forget the Christmas Party. More on that later.

The next Board meeting will be at NØDEF's QTH.

Respectfully submitted,
by WBØLTV.

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Skip (cont.)

Sporadic E will usually exhibit these characteristics: lasts for several hours (but minutes or a day of time is also possible); most common for a few hours after noon and at about sunset; happens about every day in June (Northern Hemisphere, 40° North), but only one or two days a week by September; more than twice as common for stations as far south as St. Louis, Missouri when compared to stations in New Hampshire; the ionized areas tend to move east and west.

It is also common for more than one ionized area, called clouds to exist at a time. Each "cloud" will reflect only between certain geographical areas(technically the word *reflect* should be *refract*). The area of reflection can have very sharp boundaries. It is not uncommon to have a strong station disappear in a minute. If only one cloud exists, a whole band of activity can disappear; this is especially true at night when there is no sun radiation to act as a back-up. The ionization level of thse clouds can be so strong that you can work stations only 200 miles away on 10 meters and once or twice a year, the ionization reaches such a level that frequencies higher than the 2 meter band (144-148 MHz) are reflected.

If you understand this you will see why a station you are working will disappear, (the cloud common to both of you disappeared or moved), and other stations in QSO have replaced him (a new cloud or one has moved). Also, if you understand this, you now know when and how to work all states on 10 meters (use E_s to work nearby states).

There are several ways to tell when an $E_s$cloud is forming or is existing. Some signs are: very short skip; evening skip to the east; skip stations on TV or the FM broadcast band; and S meter breaking strong skip signals from about 1000 miles away. E_s peaks in June, but can happen any time, any month.

Often when E_s is about to begin, ground wave stations that are not too strong will have multi-path flutter on them. That is the same flutter you get on your FM radio or TV set when a low airplane goes over your house (and you use over-the-air reception, not cable). The flutter will recycle every few minutes.

If you think sporadic E, E_s, is interesting then operation of the amateur six-meter band is for you. E_s causes more than 90 percent of the skip signals that exist there.

QRM, QRM, QRM

Now that you are an expert on propagation, consider and understand why the following QRM conditions can occur:

W9, Illinois, and W7, Utah are in QSO. From Wyoming, W7LFL cannot hear either of them (too close). W8, Ohio, does not hear W9; they are too close. W9 is now transmitting and therefore, both W8 or W9, calls CQ and W8 answers. W7, Utah, hears both W8 and W9 and therefore suffers from QRM. This very common cause of QRM is close to unavoidable.

Consider this: early morning at W7LFL who is working W5 to the south using E_s. Also on the same frequency but not hearing the just-mentioned QSO is W1. New England, working W4, Florida, using a different E_s cloud. As the morning progresses, the ionosphere is sun radiation activated between these two QSOs over a period of 30 minutes and then all four stations can hear one another. QRM, yes; avoidable, no.

Some QRM is avoidable. If you have called CQ three transmissions in a row and did not get an answer (assume the band is open), then you most likely are on top of a station that is too close for you to hear. So you move to another frequency. This is especially true near sunset, then the minimum skip distances may be in excess of 2,000 miles.

If you are a Novice and the 15 meter Novice band is full, do not slide "almost" on top of a weak station and call CQ. Just because you own an 80 Hz wide CW filter, the other station may not, and as conditions change you may ruin his QSO. Instead try another band or just listen for a while and you will be able to call a station at the end of his QSO.

—by Ted Hommel, W7LFL
Reprinted from WORLD RADIO & RF Newsletter

And TNX to Don WDØBSZ for passing it along

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